Amendments to the Claims

1-47. (Canceled)

1 ~~48.~~ (Previously Amended) (Allowed) An isolated nucleic acid, comprising a sequence of nucleotides that encodes SEQ ID NO: 43, SEQ ID NO: 66, SEQ ID NO: 67, SEQ ID NO:69, or a complementary sequence of any of such nucleotides.

49-50. (Canceled)

2 ~~51.~~ (Previously Amended) (Allowed) An expression vector, comprising the isolated nucleic acid of claim ~~48~~ 1, and operably linked to said nucleic acid, regulatory sequences effective for expression of the nucleic acid in a selected host cell.

3 ~~52.~~ (Original) (Allowed) The recombinant expression vector of claim ~~51~~ 2, wherein said vector is suitable for transfection of a bacterial cell.

2 4 ~~53.~~ (Original) (Allowed) A heterologous cell transfected with the vector of claim ~~51~~ 2, wherein said cell expresses a biologically active β-secretase.

5 ~~54.~~ (Original) (Allowed) The cell of claim ~~53~~ 4, wherein said cell is a eukaryotic cell.

6 ~~55.~~ (Original) (Allowed) The cell of claim ~~53~~ 4, wherein said cell is a bacterial cell.

7 ~~56.~~ (Original) (Allowed) The cell of claim ~~53~~ 4, wherein said cell is an insect cell.

8 ~~57.~~ (Original) (Allowed) The cell of claim ~~53~~ 4, wherein said cell is a yeast cell.

~~58.~~ (Currently Amended) (Previously Allowed) A method of producing a recombinant β-secretase enzyme, comprising culturing a cell transfected with a vector comprising a sequence of nucleotides that encodes [~~SEQ ID NO: 2,~~] SEQ ID NO: 43, SEQ ID NO: 57, SEQ ID NO: 58, SEQ ID NO: 59, SEQ ID NO: 60, SEQ ID NO: 66, SEQ ID NO: 67, SEQ ID NO: 68, SEQ ID NO: 69, SEQ ID NO: 70, SEQ ID NO: 74, SEQ ID NO: 75, or a complementary sequence of such nucleotides under conditions to promote growth of said cell, and subjecting an extract or cultured medium from said cell to an affinity matrix.

~~59.~~ (Original) (Allowed) The method of claim ~~58~~, wherein said affinity matrix contains a β-secretase inhibitor molecule.

~~60.~~ (Previously Amended) (Allowed) The method of claim ~~59~~, wherein said inhibitor molecule is P10-P4'staD->V (SEQ ID NO:73).

~~61.~~ (Original) (Allowed) The method of claim ~~58~~, wherein said matrix contains an antibody characterized by an ability to bind β-secretase.

~~62.~~ (Currently Amended) (Previously Allowed) The method of claim ~~61~~, wherein said antibody binds specifically to any of the protein compositions of [~~SEQ ID NO: 2,~~] SEQ ID NO: 43, [~~SEQ ID NO: 56,~~] SEQ ID NO: 57, SEQ ID NO: 58, SEQ ID NO: 59, SEQ ID NO: 60, SEQ ID NO: 66, SEQ ID NO: 67, SEQ ID NO: 68, SEQ ID NO: 69, SEQ ID NO: 70, SEQ ID NO: 71, SEQ ID NO: 74, SEQ ID NO: 75[~~, or a β-secretase protein~~].

~~63.~~ (Previously Amended) (Allowed) The method of claim ~~61~~, wherein said antibody further lacks significant immunoreactivity with a protein having the sequence of SEQ ID NO: 2.

~~64.~~ (Previously Amended) (Allowed) A heterologous cell, comprising

(i) a nucleic acid molecule encoding a β-secretase protein of SEQ ID NO: 43, SEQ ID NO: 66, SEQ ID NO: 67, SEQ ID NO: 69, or the complementary sequence of said nucleic acid molecules;

(ii) a nucleic acid molecule encoding a β-secretase substrate molecule; and

(iii) operatively linked to (i) and (ii), a regulatory sequence effective for expression of said nucleic acid molecules in said cell.

16 ~~65~~. (Original) (Allowed) The cell of claim ~~64~~ 15, wherein said nucleic acid encoding said β-secretase protein is heterologous to said cell.

17 ~~66~~. (Previously Amended) (Allowed) The cell of claim ~~64~~ 15, wherein both said nucleic acids encoding said β-secretase protein and encoding said β-secretase substrate molecule are heterologous to said cell.

C2

18 ~~67~~. (Previously Amended) (Allowed) The cell of claim ~~64~~ 15, wherein said β-secretase substrate molecule is selected from the group consisting of the wild type β-amyloid precursor protein (APPwt), the Swedish mutant β-amyloid precursor protein (APPsw), and β-secretase cleavable fragments thereof.

19 ~~68~~. (Previously Amended) (Allowed) The cell of claim ~~64~~ 15, wherein said β-secretase substrate is selected from the group consisting of a maltose binding protein fused at the carboxy-terminus to the 125 carboxyl-terminal amino acids of β-amyloid precursor protein (APP) having the cleavage site of SEQ ID NO: 54 (MBP-C125wt) and a maltose binding protein fused at the carboxy-terminus to the 125 C-terminus amino acids of β-amyloid precursor protein (APP) having the cleavage site of SEQ ID NO: 51 (MBP-C125sw).

20 ~~69~~. (Previously Amended) (Allowed) The cell of claim ~~67~~ 18, wherein said β-secretase-cleavable fragment is selected from the group consisting of SEQ ID NO: 82; SEQ ID NO: 83; SEQ ID NO: 84; SEQ ID NO: 85; SEQ ID NO: 86; SEQ ID NO: 87; SEQ ID NO: 88;

G

SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 91; SEQ ID NO: 92; SEQ ID NO: 93; SEQ ID NO: 94; SEQ ID NO: 95; and SEQ ID NO: 96.

70-113. (Canceled)